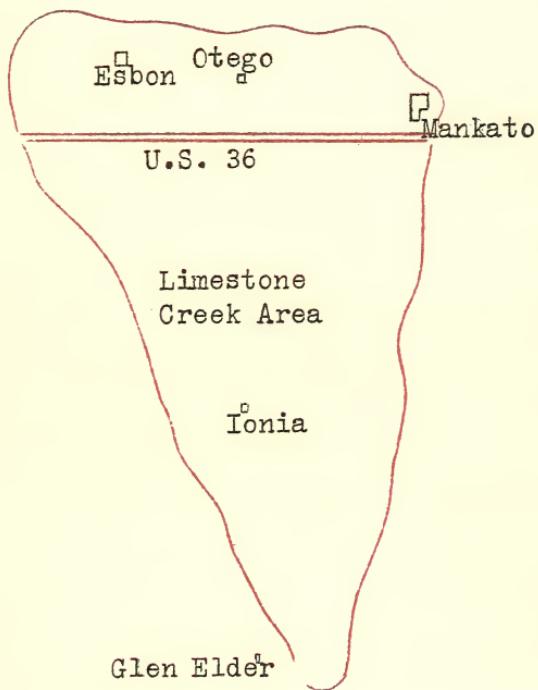


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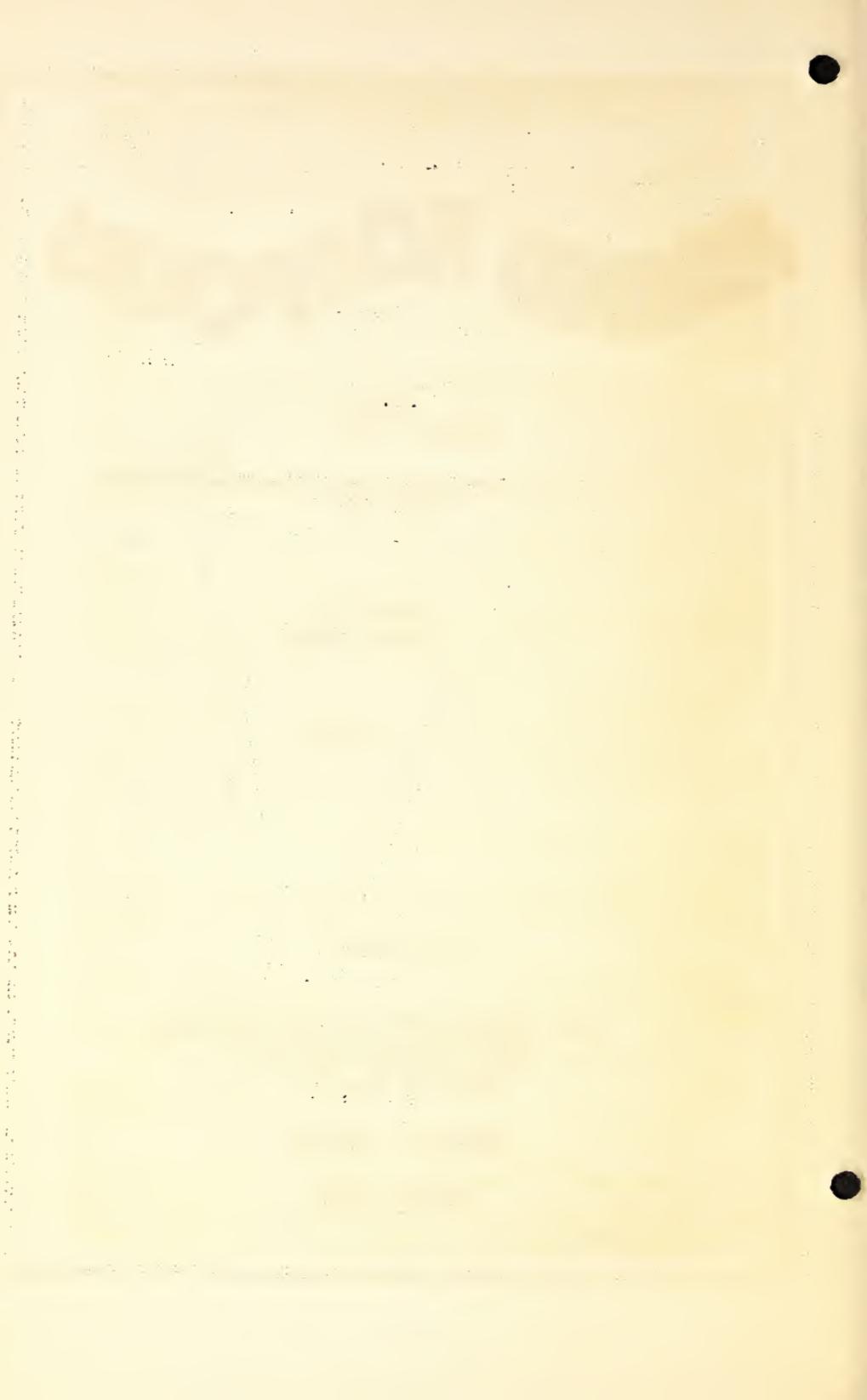
Kansas Contours



U.S. DEPARTMENT OF THE INTERIOR
SOIL EROSION SERVICE
PROJECT NO. 11

Mankato, Kansas

March, 1935



TILLAGE METHODS TO CONTROL WIND EROSION

There are several types of tillage methods that may be used to aid in controlling wind erosion.

The best method is to fall or early spring blank list the entire field on the contour. This should be done preferably when the soil is moist.

If tillage over the entire field is not done prior to the time that the winds start blowing, there are two methods that have given good results.

The easiest, quickest and perhaps the most efficient method is to use a shovel cultivator from which half of the shovels have been removed. This machine should be operated through the field at intervals of one to two rods across the wind. The shovels should run deep so as to bring up some more compact soil and leave a cloddy or rough surface.

Lister furrows at one or two rod intervals will usually check blowing for a time. It is sometimes advisable to use this method on wheat fields. The loss of wheat due to listing may be small as compared with loss if the listing were not done.

If these furrows become filled with soil, other furrows should be made between the original ones.

Several farmers in the Limestone Area have used these methods. A few of them are:

Earl Cole ----- Fall blank listing.

W. A. McDill ----- Shovel cultivated
entire field in fall.

Ray Dietz ----- Listing in strips in
the spring.

Mrs. Bertha Marietta - Shovel cultivated in
strips in the spring.

If your fields are blowing badly, some form

Attention should be called to the fact that the wilting point of much of the soil in the Limestone Area is about 12% which means that plants are unable to remove the last 12% of moisture from the soil.

The figures show that land that has been in alfalfa for a number of years has a lower moisture content than land that has been in cultivated crops. This difference continues down to 15 feet or deeper. This is due to the fact that alfalfa is a deep rooted crop and the roots extract the water to depths of 15 to 25 feet in deep soils. For this reason, it is better wherever possible to put alfalfa on land that has not had alfalfa before.

SECURING SEED FOR 1935

Extra care must be taken this year in securing the seed for various crops. The drouth has reduced the available amounts of seed of adapted varieties. The cost of seed is very high. Therefore, the utmost attention must be paid to the variety, germination, and purity. Only varieties well adapted to this region should be used.

You are asked to refer to a previous bulletin for adapted varieties and substitutions. Let us call your attention to the fact that some firms are calling Hegari, "Atlas Hegari," and it is being confused with Atlas Sorgo.

Two year old seed will have lost some of its viability, so in order to insure a proper stand all seed should be tested for purity so that noxious weeds, especially bindweed, will not be seeded with the crop.

PASTURE MANAGEMENT

Professor Aldous of the Kansas State College says that approximately 75% of Buffalo

Grass pastures that were overgrazed, died last summer, due to the drouth. He suggests that these pastures should not be grazed until late summer to give the plants sufficient time to build up the depleted plant food reserve in the root system. Also give the plants time to send out runners and produce seed. Buffalo Grass will soon reestablish itself if weather conditions are favorable and the pasture is not overgrazed.

This will necessitate the planting of temporary pastures such as oats and Sudan Grass to supplement the grass land pastures.

METHODS OF CONTOUR PLOWING

With spring work opening up it is now time to give some attention to the proper method of handling the terraced fields. When the construction crew leaves the field the terraces are not left in the best shape for farming. The survey crew makes certain that the terraces will carry water and have a good height of ridge. The farmer's contribution to the terracing program is important. He is expected to use the harrow to flatten the top of the ridge and to decrease the sharpness of the slopes on both the upper and lower edges of the ridge.

Another method of improving the terrace when it is too low is to plow it. There are several methods of plowing terraces. The proper one to use will depend upon individual conditions. The various methods and the conditions under which each should be used are as follows:

1. Back furrowing to the top of the terrace ridge.

This method is used when necessary to increase the height of the terrace ridge and is accomplished by back furrowing to the

top of the ridge. The plowing may be discontinued when the center of the channel is reached as in Fig. 1 or if the entire field is to be plowed, there are two methods to follow. One plan is to continue back furrowing until the center of the space between the terraces is reached as in Fig. 2. This system of plowing makes each terrace the center of a plow land. The other method is to back furrow all terraces until the center of the channel above the terrace is reached and then use the remaining space between terraces for a plow land and plow it out by back furrowing to the center. This prevents the formation of a deep dead furrow between terraces. This latter method is shown in Fig. 3.

If these two methods of plowing are used, it is possible to keep the terrace ridge at the proper height by the use of the plow. If a good rotation is used, it will not be necessary to plow the terraces every year, but only when the field is plowed for planting row crops, wheat, or alfalfa.

2. Back furrowing to the base of the terrace ridge.

This method, Fig. 4, is used where the terrace ridge has sufficient height, but is too narrow. Proper plowing in this case will decrease the sharp slopes and broaden the base of the terrace ridge which in turn will make the terrace more farmable.

The proper place to start plowing will depend upon the size and shape of terrace and must be determined by inspection. However, in most cases the best plan is to start back furrowing on the lower third of the terrace ridge and proceed as in Fig. 1.

FIGURE ①

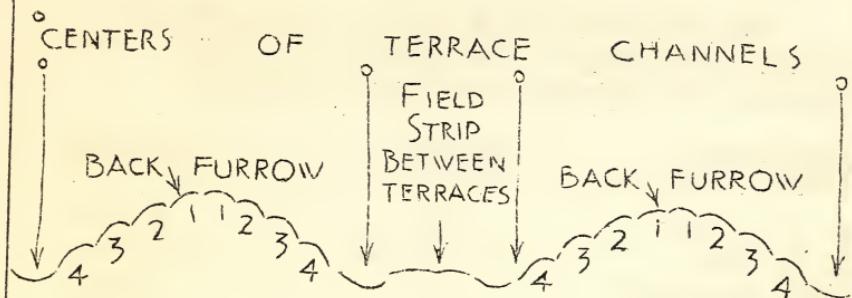


FIGURE ②

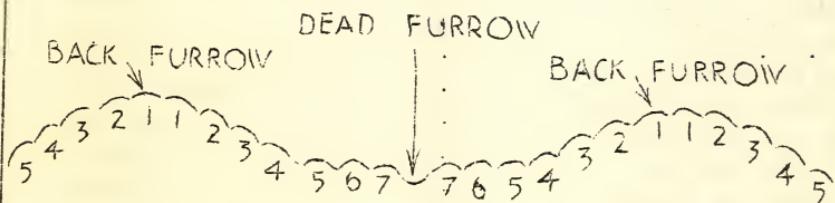
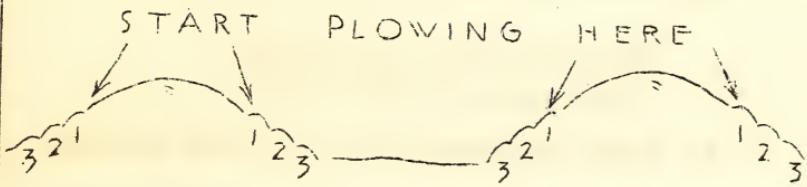


FIGURE ③

DEAD FURROWS IN CENTERS OF TERRACE CHANNELS



FIGURE ④



PRECIPITATION FOR FEBRUARY

The following is a list of cooperators having rain gauges, the amount of precipitation for February and their locations:

<u>COOPERATOR</u>	<u>AMOUNT</u>	<u>TOWNSHIP</u>
J. E. Green	.20	Center
J. V. Pate	No report	Limestone
John Cavanaugh	.32	Esbon
Bert Sink	1.12	Esbon
Darius Henningsen	.62	Esbon
O. R. Beeler	.60	Ionia
Vernon Collie	.69	Ionia
F. G. Dietz	.62	Irving
L. A. Wilkes	.84	Athens
Lloyd Lowdermilk	.45	Glen Elder
M. A. McCleery	.37	Odessa
I. C. Beeler	.62	Ionia
Lawrence Riley	.34	Athens
Max Steele	.94	Center
Walter Byers	.57	Athens
James Winn	.41	Glen Elder
CCC Camp	.62	Burr Oak
Lester McDaniels	.59	Buffalo
Ralph Wierenga	.71	Irving
Glen Kindler	.48	Esbon
Earl Cole	.69	Limestone
Raymond Nichols	.75	Limestone
E. R. Bollinger	.70	Ionia
Charles Graham	.72	Calvin
John Tegley	1.06	Harrison

Precipitation during 1935 to March 21
has been .98 inch or 44% normal.

USE THE FRESNO TO IMPROVE
SLOPE OF TERRACE FILLS

It is quite necessary that all Soil Erosion

Service cooperators personally check the terrace lines that have been built on their farms. This plan will be the means of each cooperator familiarizing himself with his respective terrace layout. After this inspection, any questions relative to contour farming and maintenance of terrace systems will be answered by the Soil Erosion Service at Mankato, Kansas. The effectiveness of any engineering or agronomic plans or other structures devised will continue to function just so long as you give the attention and maintenance to these plans that sound management demands.

In conformity with the above suggestions we offer the following suggestions:

1. Take a fresno or slip and at all points that the terrace line crosses a gully or draw, build up the slope on both sides of the terrace ridge. The earth for these fills should be taken from the terrace channel on the upper side of the terrace ridge.
2. Constant attention is necessary to maintain the terrace height and width of terrace base across draws until final settlement will give a terrace that will function properly.
3. Anyone who does not have access to a fresno may obtain one to use by applying to the Soil Erosion Service.

TRAFFIC IN THE OUTLET CHANNELS

Cooperators should be especially careful to avoid using their outlet channels for a road or allowing livestock to continually walk up and down the channel.

Whenever possible, travel to and from the field should be along the fence line at the upper end of the terrace. This is especially true while the channels are fresh and before the sod has become established. Any imple-

ment or wagon with a narrow tire will cause a small rut to form in a soft channel, which, if not obliterated, will concentrate the flow of water at that point and start gullying.

Livestock when allowed to travel continuously in an outlet channel will cause a path to form which will start gullying.

SOIL EROSION SURVEY

The Erosion Survey in this Area is approximately 75% completed at the present time. To date, twenty-two different soil types comprised of seven soil series have been mapped.

One of the chief objectives of this survey is to secure an actual picture of the erosion conditions on each field, and farm, located in the Area.

For the past several months there have been soil profiles of two soil series on display in the Soil Erosion Office window. We expect to secure profiles of several other soils from farms in this Area. They will soon be on display. The profiles taken are actual soils from farms in this Area and are not altered in any way.

A number of pond sites have been located where core drillings will be made to determine subsoil conditions that might affect water holding ability.

The Soil Erosion Service would be glad to give you any information concerning the soils or erosion conditions on your farm if you care to call at the Mankato office.

CONTROL OF EROSION AN UNAVOIDABLE NECESSITY (Quotation from "The Land" by H. H. Bennett)

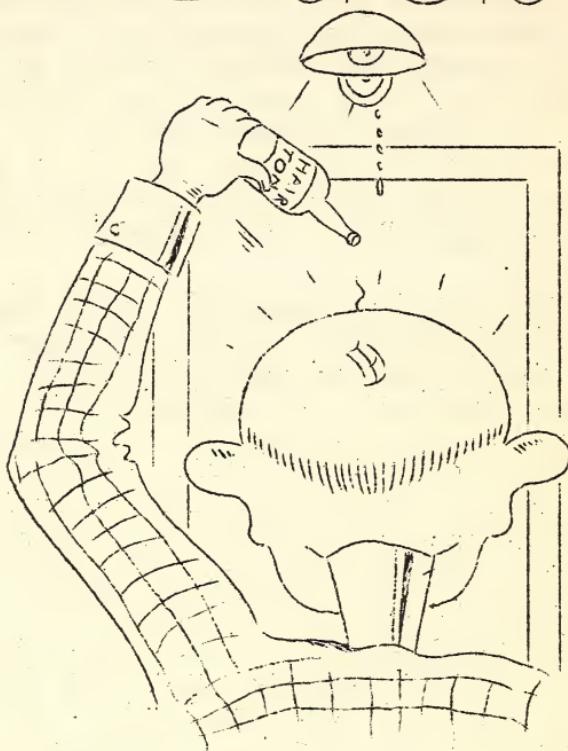
"Control of erosion is the first and most essential step in the direction of correct land utilization on something like 75% of the cultivated (and cultivable) area of the nation.

If the soil is permitted to wash to a condition equivalent to skeletonized land, as has already happened over something like 35 million acres formerly cultivated, there will be nothing left to save. Failure to curb this insidious process will effectively and disastrously take care of all aspects of the land problem in numerous localities, both physical and economic; and after this deluge of waste, nature, in numerous instances at any rate, can do as good a job as man toward rehabilitating these hopelessly devastated areas. But nature's is a slow process.

It seems scarcely necessary to add that whatever our inclinations may be, whatever opinions, conclusions or complexities our round-table, institute and academic discussions may lead us to, here is a physical job -- the job of curbing erosion -- that must be performed if the nation is to avoid early arrival at an inconceivably bad land situation.

The Union of South Africa has reached this conclusion and is now busily engaged in an attack against the devastating erosion of that country, employing a plan of procedure very much like that developed by the Soil Erosion Service. The Italian Government is engaged in an enormous land reclamation and conservation program -- the Bonifica Integrale -- at a cost of \$500,000,000. Japan for many years has been spending many times the value of numerous critically eroding areas in order to protect indispensable valley lands from the silt issuing from such sore spots. The United States can no more afford to neglect any further this gigantic problem of waning soil productivity than South Africa or Japan or Italy, for the very simple reason that we are depleting our farm and grazing lands at a rate probably exceeding that taking place on any other important part of the globe."

°BARE SPOTS°



"PROTECT BARE SPOTS
WITH VEGETATIVE COVERING"



CLOVER AND GRASS SEED IS
BEING DELIVERED
FOR SPRING PLANTING

fink

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